

Multiple Nominative Constructions in Japanese: An Incremental Grammar Perspective

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Abstract

This article defends an “incremental grammar” view, where syntactic puzzles are accounted for in terms of how a sentence is parsed online. To this end, we focus on the Multiple Nominative Construction (MNC) in Japanese, offering new data involving “rightward displacements.” The displacement patterns of nominative NPs are shown to follow from the way an MNC string is parsed left-to-right. Our incremental account is formalised in Dynamic Syntax, with the upshot that only the licit ordering of nominative NPs in MNC leads to a legitimate structure update.

1 Introduction

Japanese allows Multiple Nominative Construction (MNC), where more than one NP is nominative-marked within a (seemingly) single clause (Kuno, 1973; see also references in §2.3).

- (1) *Ken-ga kami-ga nagai*
K-NOM hair-NOM long
‘Ken’s hair is long.’

In (1), both *Ken* and *kami* ‘hair’ are marked by the nominative case particle *ga*. The initial *ga*-marked element *Ken* in (1) is often called “major subject” (Kuroda, 1978; 1986; 1988).¹

In this article, we provide new data on MNC in connection with rightward displacements (§2), and argue that these data are adequately handled from

the perspective of “incremental grammar,” a view where syntactic puzzles are solved as a reflection of the way a sentence is parsed time-linearly (§3). Our analysis is formalised within Dynamic Syntax (Cann et al, 2005), with the bonus of predicting the “left-right asymmetries” (§4).

2 Empirical Findings

2.1 Domain of Enquiry

We begin by clarifying our target. In Japanese, an object NP is typically accusative-marked, but some stative predicates may select a nominative-marked object NP (Koizumi, 2008; Kuno, 1973; 1983).

- (2) *Ken-ga eigo-ga hanas-eru*
K-NOM English-NOM speak-POT
‘Ken can speak English.’

This article does **not** analyse MNC data such as (2) which involve a nominative-marked object.

In generative syntax, some scholars have argued that MNC (1) is derived from (3).

- (3) *Ken-no kami-ga nagai*
K-GEN hair-NOM long
‘Ken’s hair is long.’

In Kuno (1973), “subjectivization” applies to the genitive-marked NP *Ken-no*, which turns it to the nominative-marked subject NP *Ken-ga*. Analyses along with these lines include “nominativization” (Shibatani, 1977), “possessor raising” (Ura, 1996), and “genitive raising” (Tateishi, 1991).

The type of MNC sentences such as (1), which is related to “genitive”-involving sentences like (3), has been studied most extensively. Since the other kinds of MNC have distinct syntactic and semantic properties (Kikuchi, 1996; Kobayashi, 2010), we focus on the type of MNC illustrated in (1).

¹ A major subject is generally in focus, giving rise to an “exhaustive listing” reading (Kuno, 1973). Thus, a more appropriate translation of (1) would be ‘It is Ken whose hair is long.’ See Heycock and Doron (2003: §4) for an explanation of why a major subject generally (but not always) endangers an exhaustive interpretation.

It is further noted that more than two *ga*-marked NPs are licensed in the (1)-type of MNC, as shown in (4). Examples with more than two *ga*-marked NPs are also addressed in our study.

- (4) *Ken-ga imouto-ga kami-ga nagai*
K-NOM sister-NOM hair-NOM long
'Ken's younger sister's hair is long.'

2.2 MNC and Rightward Displacements

Having clarified our research target, we now offer new data on MNC in connection with "rightward displacement" where the term *displacement* is used for the purposes of description. Compared with the simple sentence (5), Japanese has three rightward-displacement constructions: relatives (6), clefts (7), and postposing (8). In (6)-(8), *sushi* appears to the right of the clause in question. (*e* in (6)-(8) is used to notate "gap" in a theory-neutral manner.)

- (5) *Ken-ga sushi-o tabeta*
K-NOM sushi-ACC ate
'Ken ate sushi.'
- (6) *[[Ken-ga e tabeta] sushi]-wa yasui*
[[K-NOM ate] sushi]-TOP cheap
'The sushi Ken ate is cheap.' <relatives>
- (7) *[[Ken-ga e tabeta] no]-wa sushi-da*
[[K-NOM ate] NMNS]-TOP sushi-COP
'It is sushi that Ken ate.' <clefts>
- (8) *Ken-ga e tabeta-yo, sushi(-o)*
K-NOM ate-FP sushi(-ACC)
'Ken ate sushi.' <postposing>

In (7), *no* is a nominalising complementiser (Kizu, 2005). In (8), *yo* is a final particle, indicating that (8) is uttered colloquially; though Japanese is verb-final, a non-verbal item may appear to the right of the sentence in casual speech (Kuno, 1978).

For an MNC string which contains the *n*-number of *ga*-marked NPs in a single clause (setting aside *ga*-marked object NPs; see §2.1), let us notate the sequence of such NPs as <NP₁, NP₂, ..., NP_n>. We then put forward the following generalisation:

- (9) Generalisation
For MNC with <NP₁, NP₂, ..., NP_n>, only the leftmost NP₁ may be "right-displaced."

Below, we shall illustrate (9) with MNC examples.

Relatives. Consider the MNC sentence (10). While NP₁ *sono-otoko* 'that man' may be a head noun (i.e.

appear to the right of the relative clause) as in (11), this is not the case with NP₂ *imouto* 'younger sister' and NP₃ *kami* 'hair' as shown in (12)-(13).

- (10) *sono-otoko-ga imouto-ga kami-ga nagai*
that-man-NOM sister-NOM hair-NOM long
'That man's younger sister's hair is long.'
- (11) *[e imouto-ga kami-ga nagai] sono-otoko*
[sister-NOM hair-NOM long] that-man
'That man whose younger sister's hair is long'
- (12) **[sono-otoko-ga e kami-ga nagai] imouto*
[that-man-NOM hair-NOM long] sister
- (13) **[sono-otoko-ga imouto-ga e nagai] kami*
[that-man-NOM sister-NOM long] hair

Clefts. In MNC (10), only NP₁ *sono-otoko* 'that man' may be in focus (i.e. appear to the right of the presupposition clause of the cleft). That is, neither NP₂ *imouto* 'younger sister' nor NP₃ *kami* 'hair' can be at a focus position of the cleft.

- (14) *[[e imouto-ga kami-ga nagai]*
[[sister-NOM hair-NOM long]
no]-wa sono-otoko-da
NMNS]-TOP that-man-COP
Lit. 'It is that man_i that his_i younger sister's hair is long.'
- (15) **[[sono-otoko-ga e kami-ga nagai]*
[[that-man-NOM hair-NOM long]
no]-wa imouto-da
NMNS]-TOP sister-COP
- (16) **[[sono-otoko-ga imouto-ga e nagai]*
[[that-man-NOM sister-NOM long]
no]-wa kami-da
NMNS]-TOP hair-COP

Postposing. In MNC sentence (10), what may be postposed (i.e. appear to the right of the sentence) is NP₁ *sono-otoko* 'that man' alone.

- (17) *e imouto-ga kami-ga nagai-yo,*
sister-NOM hair-NOM long-FP
sono-otoko(-ga)
that-man(-NOM)
'That man's younger sister's hair is long.'
- (18) **sono-otoko-ga e kami-ga nagai-yo,*
that-man-NOM hair-NOM long-FP
imouto(-ga)
sister(-NOM)

- (19) **sono-otoko-ga imouto-ga e nagai-yo,*
 that-man-NOM sister-NOM long-FP
kami(-ga)
 hair(-NOM)

We have exemplified the generalisation (9), but the following examples may pose a problem.

- (20) *nihon-ga GDP-ga takai*
 Japan-NOM GDP-NOM high
 ‘Japan’s GDP is high.’
- (21) [*e GDP-ga takai*] *nihon*
 [GDP-NOM high] Japan
 Lit. ‘Japan_i such that GDP is high in it_i.’
- (22) [*nihon-ga e takai*] *GDP*
 [Japan-NOM high] GDP
 Lit. ‘GDP_i such that it_i is high in Japan.’

In particular, it is (at first glance) unexpected that (22), where NP₂ *GDP* in (20) occurs to the right of the clause, seems fine. (22) may not be completely acceptable, but our contention is that for those who accept (22), (23) would also be acceptable.²

- (23) *GDP-ga nihon-ga takai*
 GDP-NOM Japan-NOM high
 ‘It is GDP that is high in Japan.’

Provided that (23) is a basis for (22), acceptability of (22) is not problematic for the generalisation (9) since NP₁ in (23) is *GDP*.

In a similar vein, the cleft sentence (24) and the postposing sentence (25), where NP₂ *GDP* occurs to the right of the clause, do not pose a problem for the generalisation (9), given that they are related to the MNC sentence (23).

- (24) [*nihon-ga e takai*] *no*]-*wa GDP-da*
 [Japan-NOM high] NMNS]-TOP GDP-COP
 ‘It is GDP that is high in Japan.’
- (25) *nihon-ga e takai-yo, GDP-ga*
 Japan-NOM high-FP GDP-NOM
 ‘GDP is high in Japan.’

We illustrated (9) with MNC (10) that involves three *ga*-NPs. The generalisation, we believe, also holds of MNC with more than three *ga*-NPs. Such

² (23) is reasonably acceptable (or much better than the *-marked ones above) if it serves as an answer to (i).

(i) [*nihon-ga takai no*]-*wa dono-shiyou desu-ka*
 [Japan-NOM high NMNS]-TOP which-index COP-Q
 ‘Which national index is high in Japan?’

examples, however, are hard to construct due to performance factors; see Heycock (1993: 204) and Kuroda (1986: §8) for related discussion.

2.3 Previous Studies

The data in §2.2 have not been noted in past works (e.g. Akiyama, 2005; Fukui, 1988; Heycock, 1993; Heycock and Doron, 2003; Hiraiwa, 2001; Kiss, 1981; Kuno, 1973; Kuroda, 1986; Mihara, 1994; Mihara and Hiraiwa, 2006; Muromatsu, 1997; Nagai, 1999; Ohtani and Valverde, 2012; Shibatani, 1977; Takami and Kamio, 1996; Takezawa, 1987; Tateishi, 1991; Ura, 1996; Vermeulen, 2005; Whitman, 2001); see also Kobayashi (2010; 2011) for a meticulous review of previous studies.

The exception is Nakamura et al. (2009) (cf. Nakamura (2002)), but their findings are limited. They consider MNC with exactly two *ga*-NPs and do not survey postposing. Thus, our generalisation (9), which concerns *leftmost* and *postposing*, is not obtainable from their data. Moreover, they do not examine the left-right asymmetries (see §4). Lastly, their account is formally illicit (Seraku, 2016).

Past analyses are divided into two types in terms of how multiple *ga*-NPs are licensed:

- *Ga*-NPs are licensed at multiple Specs of a single projection (Hiraiwa, 2001; Ura, 1996; Vermeulen, 2005; among others).
- *Ga*-NPs are licensed at multiple adjunction sites for a Spec (Heycock, 1993; Kuno, 1973; Mihara, 1994; among others).

In both approaches, it is not obvious how the data in §2.2 are treated. In Japanese, it has been widely assumed that relativisation, (caseless) clefting, and (caseless) postposing are island-insensitive (Hoji, 1990; Kuno, 1973; Tanaka and Kizu, 2007). Thus, it must be worked out how displacement of non-leftmost *ga*-NPs in <NP₁, NP₂, ..., NP_n> (in the sense of (9)) is precluded.³

It may be possible to reconcile the past analyses with the issues raised here by postulating further constraints on syntactic derivations/representations. In this article, however, we pursue another line of analysis, arguing that the generalisation (9) follows from the modelling of incremental parsing.

³ Sakai (1994) opens up the view that Japanese relatives are island-sensitive, but the problem still remains of how to prevent non-leftmost NPs from being extracted in relatives (as well as clefts and postposing).

3 Incremental Analysis

“Incrementality” in time-linear parsing has been a basis for some recent linguistic theorising (Cann et al., 2011). Our claim is that if we adopt (26) and give formal substance to them, we can capture the generalisation (9) (and further properties of MNC).

(26) Assumptions adopted in this study

- A string of words is parsed progressively as it is produced.
- Each parse state is associated with a structure, gradually updated as the parse proceeds.
- This structure is semantic in that it represents an interpretation of the string parsed.

These assumptions are made precise with the tools of Dynamic Syntax (Cann et al., 2005; Kempson et al., 2001). For reasons of brevity, we omit as many dispensable technical details as possible.

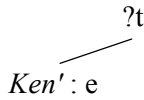
3.1 Dynamic Syntax

Dynamic Syntax (DS) specifies, for each language, a set of (i) procedures to build a semantic structure and (ii) constraints on its gradual update.

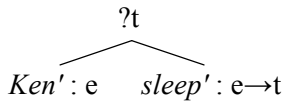
To take (27) as an example, a semantic structure is built up as it is incrementally parsed, as shown in each step of (28)-(30). Within DS, a structure is expressed in binary-branching tree format.

- (27) *Ken-ga ne-ta*
K-NOM sleep-PAST
‘Ken slept.’

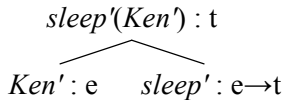
(28) Parsing *Ken-ga*



(29) Parsing *Ken-ga ne-ta* (ignoring tense)



(30) Final state (representing the content of (27))



Note that the structure is **semantic**; thus, *Ken'* and *sleep'* are not natural-language expressions but are semantic contents. Each content is specified for a semantic type. For instance, *Ken'* is of type *e* (i.e. entity), *sleep'(Ken')* is of type-*t* (i.e. proposition),

and *sleep'* is of type $e \rightarrow t$ (i.e. function from a type-*e* content to a type-*t* content).

In (28)-(29), the symbol ?*t* is used. Generally, ?*α* requires that the node be decorated with *α* before the parse process finishes. The constraint ?*t* is met in (30), where the type-*t* content (i.e. proposition that Ken sleeps) appears at the node in question.

There are two types of procedures for structure update: (i) general action and (ii) lexical action. An example of (i) is Functional Application. As shown in (29)-(30), the function *sleep'* applies to *Ken'*, with the output *sleep'(Ken')*. An example of (ii) is a set of actions encoded in *Ken*, which is to decorate a ?*e*-node with the content *Ken'* and its type *e*.

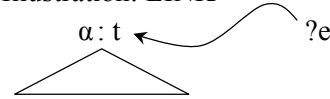
(31) Illustration: lexical action encoded in *Ken*



Not only *Ken* but also all the other lexical items in a language encode a set of actions for tree update.

Before closing, another formal apparatus, LINK, needs to be mentioned. LINK pairs structures.

(32) Illustration: LINK



LINK (32) models relatives. *α* is the content of a relative clause. This structure is LINKed to another node where the head noun of the relative clause is parsed. LINK pairs two structures irrespective of semantic types of connected nodes. In (32), a type-*t* node is LINKed to a type-*e* node. In §3.2, we shall see a LINK relation between two type-*e* nodes.

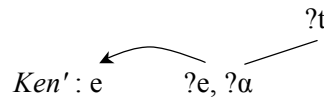
3.2 Analysis

The DS analysis of Japanese MNC is proposed in Seraku (2016). Consider MNC example (33).

- (33) *Ken-ga kami-ga nagai*
K-NOM hair-NOM long
‘Ken’s hair is long.’

The parse of *Ken-ga* in (33) produces (34).

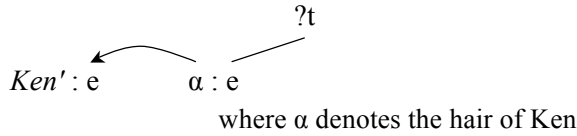
(34) Parsing *Ken-ga*



where ?*α* is a requirement that this node be decorated with a content related to *Ken'*

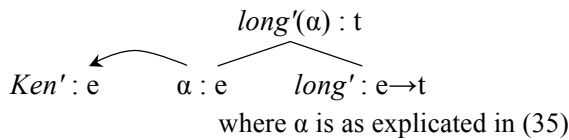
For simplification, informal symbols such as $?a$ are used.⁴ The requirement $?a$ is met by the parse of *kami* ‘hair,’ as reflected in the term α in (35).⁵

(35) Parsing *Ken-ga kami-ga*



The parse of *nagai* ‘long’ then creates a predicate node, and Functional Application yields the final state (36), where $long'(\alpha)$ expresses the proposition that Ken’s hair is long.

(36) Parsing *Ken-ga kami-ga nagai*



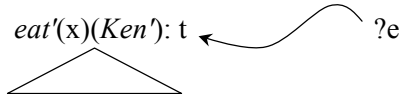
A LINK relation can be reiterated, which deals with MNC strings with more than two *ga*-marked NPs. (For this, the “structural underspecification” device must be employed.) Based on this analysis, let us turn now to the examples presented in §2.2.

Relatives. A DS account of Japanese relatives is developed in Kempson and Kurosawa (2009).

(37) [*Ken-ga e tabeta*] *sushi*
[K-NOM ate] sushi
‘The sushi which Ken ate’ <relatives>

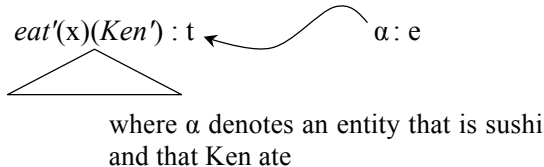
First, the parse of the relative clause *Ken-ga tabeta* builds (38). (x is a notation for the gap e .)

(38) Parsing *Ken-ga tabeta*



Second, the parse of the head noun *sushi* decorates the $?e$ -node with α , as explicated in (39).

(39) Parsing *Ken-ga tabeta sushi*



Note that the term α reflects the content of the relative clause. In Cann et al. (2005) and Kempson and Kurosawa (2009), this process is formulated as the general action of LINK Evaluation.

Now consider (11)-(13), repeated as (40)-(42).

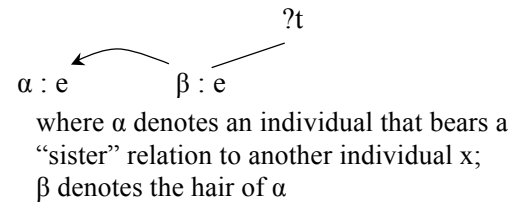
(40) [*e imouto-ga kami-ga nagai*] *sono-otoko*
[sister-NOM hair-NOM long] that-man
‘That man whose younger sister’s hair is long’

(41) * [*sono-otoko-ga e kami-ga nagai*] *imouto*
[that-man-NOM hair-NOM long] sister

(42) * [*sono-otoko-ga imouto-ga e nagai*] *kami*
[that-man-NOM sister-NOM long] hair

In (40), the parse of *imouto-ga kami-ga* builds up the structure (43).

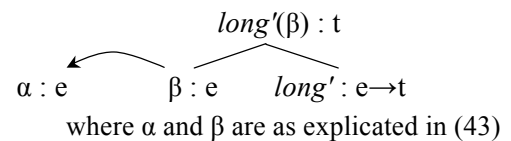
(43) Parsing *imouto-ga kami-ga*



The term α contains a variable x . This is because *imouto* ‘younger sister’ is a relational noun, which denotes a younger sister of another individual x . In virtue of LINK, this term is mapped onto β . Note that β also contains the variable x (as α is part of β) and that this variable has not yet been saturated.

The next stage is shown in (44), where the parse of *nagai* ‘long’ has created a predicate node.

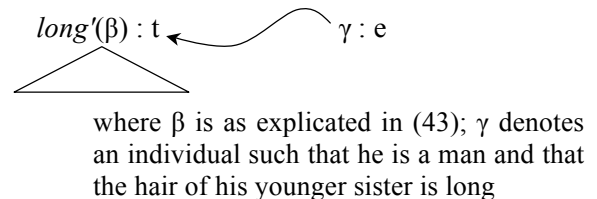
(44) Parsing *imouto-ga kami-ga nagai*



The formula $long'(\beta)$ expresses that the hair of a younger sister of x is long.

Finally, the head noun *sono-otoko* ‘that man’ is parsed, with another LINK relation (cf. (39)). It is at this stage that the variable x is saturated in γ .

(45) Parsing *imouto-ga kami-ga nagai sono-otoko*



⁴ $?a$ is formally expressed as $? \exists x. Fo(x_{R(Ken')}(x))$.

⁵ α is formally expressed as $(t, x, hair'(Ken')(x))$.

As reflected in γ , the variable x is saturated by the parse of *sono-otoko* ‘that man.’

The tree update in (43)-(45) is licit, particularly because (i) what comes first in (40) is the relational noun *imouto* ‘younger sister’ that creates a variable and (ii) the sentence contains the head noun *sono-otoko* ‘that man’ which saturates this variable.⁶

On the other hand, the above points (i) and (ii) do not hold of (41)-(42), and this is why they are ungrammatical. For (41), the first element parsed is *sono-otoko* ‘that man.’ This does not introduce a variable, and there is no room in the derived tree into which the content of the head noun *imouto* ‘younger sister’ is incorporated.⁷ Similarly, in (42), the first NP parsed *sono-otoko* ‘that man’ does not create a variable, and the same issue arises.

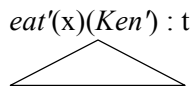
Recall that MNC allows an infinite number of *ga*-NPs in a single clause. Even in such cases, only NP₁ (in the sense of (9)) can be “right-displaced.” If an NP other than NP₁ is displaced, the relative clause necessarily contains NP₁ but NP₁ does not introduce a variable in our targeted type of MNC. Thus, the aforementioned problem arises.

Clefts. A DS treatment of Japanese clefts has been offered in Seraku (2013).

- (46) [[*Ken-ga e tabeta*] *no*]-*wa* *sushi-da*
 [[K-NOM ate] NMNS]-TOP *sushi-COP*
 ‘It is sushi that Ken ate.’ <clefts>

The parse of the presupposition part *Ken-ga tabeta* builds the structure containing a variable x (which corresponds to the gap *e*).

- (47) Parsing *Ken-ga tabeta*



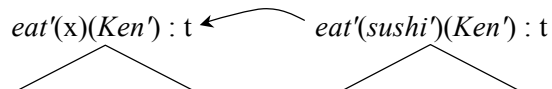
Seraku (2013) assumes that *no-wa* is a cleft marker that LINKs the structure of the presupposition part to a new structure where a focus is parsed. In (46),

⁶ As we address only the “genitive-type” MNC (§2.1), NP₂ in the sense of (9) (i.e. *imouto* in (40)) always introduces a variable. Other types of variable-introducing noun include part-whole nouns (e.g. *yane* ‘roof of x ’), inalienable nouns (e.g. *te* ‘hand of x ’), and so forth. See Shibatani (1978) for related discussion.

⁷ The part *sono-otoko-ga kami-ga nagai* in (41) is grammatical, meaning ‘That man’s hair is long.’ It is at the time of parsing *imouto* that the whole sentence of (41) becomes ungrammatical.

the focus is provided by *sushi*. The copula *da* is treated as a propositional pro-form; *da* copies the structure of the presupposition part, into which the content of the focussed NP is incorporated.

- (48) Parsing *Ken-ga tabeta no-wa sushi-da*



Setting aside the details of the tree update in (47)-(48), what is of note here is that the variable x is saturated by the parse of the focussed NP *sushi*.

Now consider (14)-(16), repeated as (49)-(51).

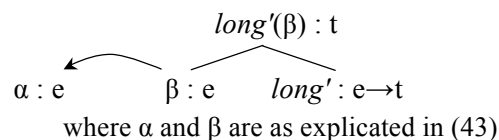
- (49) [[*e imouto-ga kami-ga nagai*]
 [[sister-NOM hair-NOM long]
no]-*wa* *sono-otoko-da*
 NMNS]-TOP that-man-COP
 Lit. ‘It is that man_i that his_i younger sister’s hair is long.’

- (50) *[[*sono-otoko-ga e kami-ga nagai*]
 [[that-man-NOM hair-NOM long]
no]-*wa* *imouto-da*
 NMNS]-TOP sister-COP

- (51) *[[*sono-otoko-ga imouto-ga e nagai*]
 [[that-man-NOM sister-NOM long]
no]-*wa* *kami-da*
 NMNS]-TOP hair-COP

In (49), the parse of *imouto-ga kami-ga nagai* yields (52), exactly as in the case of relatives (44).

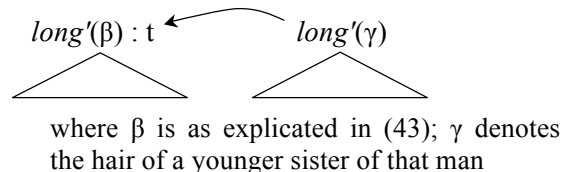
- (52) Parsing *imouto-ga kami-ga nagai*



With the yet-unsaturated variable x (which lurks in α and β), *long'(β)* expresses the proposition that the hair of a younger sister of x is long.

The cleft marker *no-wa* subsequently LINKs the current structure to a new structure, to be fleshed out by the parse of *sono-otoko* ‘that man’ and the copula *da*. (Recall the tree update (47)-(48).)

- (53) Parsing the whole string (49)



At this stage, the variable x , introduced by *imouto* ‘younger sister,’ is saturated by the parse of the focus *sono-otoko* ‘that man.’ (49) is thus mapped onto the valid structure (53).

In (50)-(51), however, such correct mapping is unachievable. For (50)-(51), the initial NP parsed is *sono-otoko* ‘that man,’ which does not introduce a variable. Therefore, the derived structure cannot accommodate the content of the focus (i.e. *imouto* ‘younger sister’ in (50), *kami* ‘hair’ in (51)).

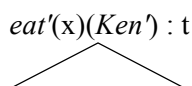
The analysis in the last paragraph remains intact if MNC comprises more *ga*-NPs than (49)-(51). For $\langle NP_1, NP_2, \dots, NP_n \rangle$ (in the sense of (9)), the crux of our analysis lies in the distinction between NP_1 (which does not introduce a variable) and the other NPs in the NP cluster (all of which introduce a variable). This distinction remains the same in MNC with more *ga*-NPs than (49)-(51).

Postposing. A DS account of Japanese postposing is presented in Seraku and Ohtani (2016a; 2016b).

- (54) *Ken-ga e tabeta-yo, sushi(-o)*
 K-NOM ate-FP sushi(-ACC)
 ‘Ken ate sushi.’ <postposing>

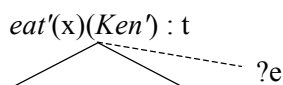
The parse of *Ken-ga tabeta* outputs a propositional structure, with the variable (annotating the gap e). The final particle *yo* (which makes no contribution to the asserted content of (54)) is ignored.

- (55) Parsing *Ken-ga tabeta-yo*



Seraku and Ohtani (2016a; 2016b) propose to make use of the general action of *Adjunction to parse the postposed element *sushi*.⁸

- (56) Parsing *Ken-ga tabeta-yo* + *Adjunction

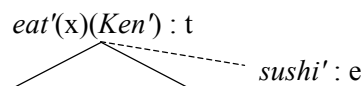


*Adjunction creates a “structurally unfixed” node, a node whose position in a tree is not determined when it is introduced. (This structural uncertainty

⁸ In the current DS setting (Cann et al., 2005; Kempson et al., 2001), the use of *Adjunction is prohibited in such environments as (55). Noting that postposing typically occurs colloquially, Seraku and Ohtani (2016a; 2016b) propose that such licensing constraints on *Adjunction are relaxed in colloquial register.

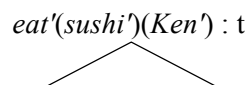
is visually shown by a dashed line in (56).) Note that *Adjunction creates a ?e-node, a place suitable for parsing the postposed NP *sushi*.

- (57) Parsing *Ken-ga tabeta-yo sushi*



Once the unfixed node is decorated with *sushi'*, it is incorporated into the propositional tree, with the result of saturating the variable x with *sushi'*.

- (58) Final state (representing the content of (54))



There are two ways of incorporating an “unfixed node” into a structure, but this complication is not germane to our main points (see Cann et al. (2005: Ch. 2)). What is crucial here is that the parse of the postposed NP *sushi* leads to the saturation of the variable x .

Now consider (17)-(19), repeated as (59)-(61).

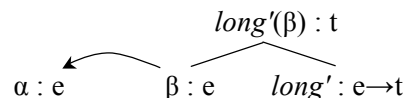
- (59) *e imouto-ga kami-ga nagai-yo,*
 sister-NOM hair-NOM long-FP
sono-otoko(-ga)
 that-man(-NOM)
 ‘That man’s younger sister’s hair is long.’

- (60) **sono-otoko-ga e kami-ga nagai-yo,*
 that-man-NOM hair-NOM long-FP
imouto(-ga)
 sister(-NOM)

- (61) **sono-otoko-ga imouto-ga e nagai-yo,*
 that-man-NOM sister-NOM long-FP
kami(-ga)
 hair(-NOM)

In (59), as usual, the parse of *imouto-ga kami-ga nagai* constructs the structure (62) (= (52)).

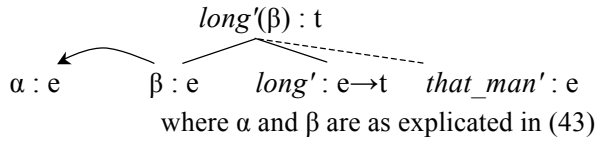
- (62) Parsing *imouto-ga kami-ga nagai*



where α and β are as explicated in (43)

The general action of *Adjunction is then applied, creating an “unfixed node” at which the postposed NP *sono-otoko* ‘that man’ is parsed.

(63) Parsing the whole string (59)



After the unfixed node is incorporated into the tree, the variable x (which lurks in β) is saturated by the content of *sono-otoko* ‘that man.’ Grammaticalness of (59) is thus captured.

The above analysis also accounts for why (60)-(61) are ungrammatical. For (60)-(61), the first NP parsed *sono-otoko* ‘that man’ does not introduce a variable, and no structural position is prepared for the incorporation of the content of the postposed NP (i.e. *imouto* in (60), *kami* in (61)).

Besides, the analysis carries over to MNC cases where more *ga*-marked NPs occur. No matter how many *ga*-NPs are present in $\langle \text{NP}_1, \text{NP}_2, \dots, \text{NP}_n \rangle$ (see (9)), only NP_1 can be “right-displaced”; for, if another NP is postposed, the initial item parsed is NP_1 , which prepares no structural position for the content of a postposed NP.

3.3 Summary

The key to our analysis is incrementality: only NP_1 in $\langle \text{NP}_1, \text{NP}_2, \dots, \text{NP}_n \rangle$ may be right-displaced, so that the first item parsed must be an NP other than NP_1 . We formalised this analysis in DS. It is worth stating that this formalisation itself contributes to the study of MNC since a strict translation from an MNC sentence to its interpretation has rarely been attempted (see Nakamura (2002) and Ohtani and Valverde (2012) for accounts within Combinatory Categorical Grammar (Steedman, 2000).)

4 Extension: Left-Right Asymmetries

We have considered **right** displacements. One may wonder how MNC is related to **left** displacements, and this is where we find left-right asymmetries.

Japanese displays scrambling and topicalisation as instances of left displacements. We restrict our attention to topicalisation as (i) scrambling of *ga*-NPs in MNC is subject to cross-speaker variations (Kobayashi, 2010: 120) and (ii) scrambling of a subject NP is contentious (Tateishi, 1991: 186).

MNC and topicalisation have been extensively investigated, but no due attention has been paid to data such as (64)-(66) (see Kuno (1973), Masuoka (1979), and Nishiyama (2003) for discussion):

(64) *sono-otoko-ga kami-ga nagai*
that-man-NOM hair-NOM long
‘That man’s hair is long.’

(65) *sono-otoko-wa kami-ga nagai*
that-man-TOP hair-NOM long

(66) *kami-wa sono-otoko-ga nagai*
hair-TOP that-man-NOM long

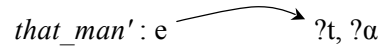
Compared with the non-topicalised sentence (64), NP_1 *sono-otoko* is topicalised in (65) and NP_2 *kami* is topicalised in (66). Notably, (66), where NP_2 is topicalised, is acceptable (in a context where the hearer is looking for a long-haired person). (66) is not based on (67), which itself is not acceptable.

(67) **kami-ga sono-otoko-ga nagai*
hair-NOM that-man-NOM long

It then seems that extraction constraints like (9) are not imposed on topicalisation.⁹

Within DS (Cann et al., 2005: §6.4), the topic particle *wa* LINKs the node for a topicalised NP to the propositional structure for the rest of the string, with the requirement that the content of the NP be located at some node below the LINKed node.

(68) Parsing *sono-otoko-wa* in (65)



where $?\alpha$ is a requirement that a node somewhere below the current node be decorated with *that_man'*

In (65)-(66), when the node for the gap (containing a variable) is created, it is **immediately** decorated with the content of the topicalised NP, due to $?\alpha$. So, the interpretations of (65)-(66) with respect to the topicalised NPs are incrementally ensured.

5 Conclusion

We have made a case for an incremental grammar perspective by exploring Japanese MNC. In future research, we hope to extend our account to other types of MNC (§2.1) and MNC in other languages (Heycock and Doron, 2003; Kim et al., 2007).

⁹ Topicalisation of a non-leftmost *ga*-NP in MNC is not always possible, however, presumably due to semantic and/or pragmatic factors such as “presupposition” (Nishiyama, 2003: 225-31). Our claim is that, setting aside such factors, topicalisation of a non-leftmost *ga*-NP in MNC is grammatically allowed. This contrasts with the data in §2.2, which are grammatically illicit.

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